DHI user's guide

Western Canadian Dairy Herd Improvement Services

COW PRODUCTION MONTHLY REPORT

Report objectives

- to provide individual cow identification, age, calving and lactation number information;
- to provide individual cow current test day milk weights and milk fat and protein levels;
- to provide individual cow lactation curve analysis;
- to provide individual cow breeding information;
- to provide individual cow total lactation production to current test date;
- to project individual cow production records to a standard 305 - day lactation;
- to compare individual cow performance to the current herd average.

HERD #

MAIL DATE 94JUN16

TEST DATE 94JUN14

SERVICE LEVEL O/S

Cow Production Monthly Report

COW IDENTIFICATION	LAST CALVING DATE MM - DD / AGE AT CALVING YR - MO	LACT. NO.	TEST DAY INFORMATION			PERSIST%	LACTATION INFORMATION				305 - DAY PRODUCTION			BCA DEVIATION FROM CURRENT BCA		
			MILK KG	FAT % / PROTEIN %	DATA FLAG	CURRENT / PREVIOUS	DAYS IN MILK	DAYS OPEN / LAST BREEDING DATE MM - DD	MILK KG	FAT % / PROTEIN %	MILK KG / BCA MILK	FAT KG / BCA FAT	PROTEIN KG / BCA PROTEIN	MILK	FAT	PROTEIN
1	08-31	2	18.0	2.3		77	287	74	8239	3.2	8591	272	319			
ANN	03 09			2.9		87		11-13		3.7	185	157	211	+0	-30	+17
2	05-19	3	39.5	4.3			26		969	4.6						
BELLA	05 04			3.2						3.4						
3	02-05	4	35.5	4.2		97	129	95	5424	3.9	9930	408	326			
CONSUELA	05 03			3.4		75		05-11		3.1	187	209	198	+2	+22	+4
4	09-13	1	27.9	4.4		102	274	155	7785	4.7	8608	402	308			
DEBRA	01 11			3.6		102		02-15		3.6	194	240	215	+9	+53	+21
5	11-15	5	28.7	2.4		91	211	91	7683	3.1	9904	292	308			
EDDIE	07 01			3.3		90		02-14		3.1	179	142	178	-6	-45	-16
6	09-21	1	25.1	3.2		121	266	147	7312	3.3	8224	276	260			
EDNA	02 08			3.3		77		02-15		3.1	190	169	187	+5	-18	-7
7	03-28	3	44.2	2.4		103	78	56	3294	3.0	9875	266	318			
FABLE	01 11			3.1		103		05-23		3.3	201	147	205	+16	-40	+11
8	04-24	3	49.7	3.7	Q		51		544	5.8						
FAITH	04 11			3.1			18			3.2						
9	05-13	4	33.2	3.2			32		1014	3.4						
FASHION	05 05			3.4						3.6						

Report checklist

- ✓ Are all first lactation animals calving between 23 and 25 months of age?
- ✓ Are the LACT NOs listed correct? Check newly entered animals.
- ✓ Do many cows have a FAT % that is less than or equal to their PROTEIN %? This may indicate a feeding or management problem.
- ✓ Do many cows have both a low FAT % and a low PROTEIN %? This may be due to lack of genetic potential.
- ✓ Which cows have data flags (Q, H, E, T or *) in the TEST DAY INFORMATION section? Determine the reasons for these flags.
- ✓ How do individual cow CURRENT and PREVIOUS PERSIST % (persistency %) figures at their respective DAYS IN MILK compare to the persistency references given in Table 1 on page 8?
- ✓ Which cows are greater than 110 DAYS OPEN? Evaluate the reasons. The Breeding Guide Plus report includes a calculation of DAYS OPEN (DAYS TO LAST BREEDING) as well as suggested goals.
- ✓ Are all breeding dates (LAST BREED DATE) correct and up-to-date?
- ✓ Which cows have large negative BCA DEVIATION FROM CURRENT BCAs? Reasons for BCA DEVIATIONs exceeding -15 points (ie. -16 or lower) should be evaluated to determine whether these cows should be culled.

Explanation and interpretation of output

All cows in the herd (milking and dry) are listed on the Cow Production Monthly Report. Cows sold or dead remain on the report for one test following their removal from the herd. For dry cows, the last completed lactation information, 305-day information and BCA deviations are shown.

COW IDENTIFICATION

COW IDENTIFICATION	LAST CALVING DATE MM - DD / AGE AT CALVING YR - MO	LACT. NO.
1	08-31	2
ANN	03 09	
2	05-19	3
BELLA	05 04	
3	02-05	4
CONSUELA	05 03	

Cows may be identified by their chain #, cow name, registration # or a combination of any 2 of these methods. Cows can be listed in order of chain #, cow name, MILK KG or cow age.

- LAST CALVING DATE (MM - DD) : the most recent calving date, reported as months and days;
- AGE AT CALVING (YR - MO) : the age of the cow at last calving in years and months;
- LACT. NO. : the current lactation of the cow on TEST DATE;

For heifers (LACT. NO. = 1) the AGE AT CALVING is particularly significant, since it is an important factor affecting their reproduction and production performance in first and subsequent lactations. Calving heifers between 23 - 25 months of age generates the maximum dollar return per day of life, as compared to calving heifers at a later age (see DHI Cow Productivity User Guide. The DHI Breeding Guide Plus report provides a breakdown of calving ages for heifers, as well as the average age at first calving.

It is important to obtain the lactation number (LACT NO.) of purchased cows so that they can be included in the correct lactation group. If no lactation number is available, animals are included in the first lactation group.

TEST DAY INFORMATION

TEST DAY INFORMATION		
MILK KG	FAT % / PROTEIN %	DATA FLAG
18.0	2.3	
	2.9	
39.5	4.3	
	3.2	
35.5	4.2	
	3.4	

For basic 24-hour testing, MILK KG is the total production from 2 milkings. FAT % and PROTEIN % represent the actual analysis of the composite milk sample.

For herds enrolled in an AP testing program, only one (AM or PM) milking is required. Data collected from this single test is converted to and reported as equivalent 24-hour test data. Please refer to the DHI Infosheet entitled 'Converting AP test weights to 24-hour weights' available from the WCDHIS library.

Fat and protein are the major components of milk. Milk fat is by far the most variable of all components. Day to day differences of 1-2% fat in individual cows are not uncommon.

Factors that affect the FAT % and PROTEIN % of milk include :

- breed of the cow;
- the feeding program;
- stage of lactation;
- temperature and season of the year;
- age of the cow;
- exercise;
- estrus;
- time of day - morning or evening milking;
- time between milkings;
- first and last drawn milk;
- manner of milking;
- mastitic milk.

Test day results may be marked with a DATA FLAG as follows :

- Q : test day production is *questionable* because it is outside a normal range. Lactation and 305-day production are not updated until the next test day. If results on the next test day confim that they are acceptable, then they are processed. If not accepted, production will be bridged from the previous test.
- H : data is *held* due to invalid or missing event code or event date. An error message is printed on the Barn Sheets so that corrections can be made.
- E : test day production will be rejected and not used in the production calculations. This happens when the relationship between evening and morning milk weights compared to the milking interval is outside acceptable variation limits. Test day production will be rejected and production credits bridged from the previous test to the subsequent test.
- T : milk sample missing. FAT and PROTEIN production are bridged from previous to subsequent test.
- * : when a * appears on a cow's record in a supervised (official) herd, her record is uncertifiable. This flag may appear for the following reasons :
  - · cow was on owner-sampler program for part of the lactation;
  - · current lactation was hormone-induced;
  - · cow was sold before 240 days;
  - · cow was dry before 120 days;
  - · cow's calving date is unknown;
  - · first test took place after 75 days in milk;
  - · maximum test interval of 75 days was exceeded;
  - · birth date or breed is unknown;
  - · no positive identification;
  - · drugs or stimulants used;
  - · cow is a grade, NIP U/X or 0% FSR.

Cow records with DATA FLAGS Q, H, and E are excluded from the AVE DAILY PRODUCTION in the STAGE OF LACTATION PROFILE table on the DHI Monthly Herd Summary Report.

PERSIST %

Persistency % is an indicator of how closely an individual cow's milk test weights follow a normal lactation curve. It measures the change in milk production for individual cows between two consecutive test days, standardized to a 30 day interval. A PERSIST % of 100 represents no change in the milk production, a PERSIST % > 100 represent an increase, while a PERSIST % < 100 represents a decrease.

The TEST DAY SUMMARY table on the Monthly Herd Summary Report provides post-peak (66+ DIM) PERSISTENCY REFERENCE values. Table 1 expands on these references, giving normal persistency values by TEST DAY and DIM. These values can be used for comparison with PERSIST % values for individual cows.

Table 1 : Average persistency values for Holsteins, calculated from the ADHIS database.

DIM	LACTATION NUMBER 1	2	3+
	-------- PERSISTENCY % --------		
5 - 35	141	131	136
36 - 65	102	97	97
66 - 95	98	94	94
96 - 125	97	93	92
126 - 155	96	92	91
156 - 185	96	92	91
186 - 215	96	92	91
216 - 245	96	92	91
246 - 275	96	92	91
276 - 305	96	93	91

Individual cows with persistencies outside the normal range are likely not producing milk up to their genetic potential. A high persistency after peak may indicate a cow's failure to reach her potential peak production. This is most commonly due to a poorly balanced ration and/or inadequate feed intake in early lactation. Similarly, a low pre-peak persistency may be due to poorly balanced, low energy rations or poor body condition and inadequate care at calving.

If more than 25% of the cows have PERSISTENCY % values which are significantly different from those in table 1, there may be problems in the following areas :

- inadequate growth of first lactation heifers;
- under-conditioned cows at calving;
- thin post-peak cows;
- off-feed problems.

One group TMR feeding may result in lower peaks and higher post-peak persistencies than those given in table 1.

The DHI Monthly Herd Summary Report and Lactation Curves option User Guides provide additional information on the interpretation of peak milk, persistency and lactation curves.

LACTATION INFORMATION

This section provides the following data for the current lactation :

LACTATION INFORMATION			
DAYS IN MILK	DAYS OPEN / LAST BREEDING DATE MM - DD	MILK KG	FAT % / PROTEIN %
287	74	8239	3.2
	11-13		3.7
26		969	4.6
			3.4
129	95	5424	3.9
	05-11		3.1

DAYS IN MILK (DIM) : The number of days from the LAST CALVING DATE to the current TEST DATE, shown as follows :

- for cows with no DATA FLAG, or with a Q, T or E flag (see page 7), actual DIM is given in the upper half of the DAYS IN MILK box;
- for cows with an H flag in the DATA FLAG column, the actual DIM at the current test is not shown because of an event code or event date error (see page 7);
- for cows with a Q, T, E or H flag in the DATA FLAG column, the DIM used to calculate LACTATION INFORMATION - MILK KG and 305 - DAY PRODUCTION data is given in the bottom half of the DAYS IN MILK box.

DAYS OPEN : Calculated only for herds on the DHI Breeding Guide or Breeding Guide Plus options. The calculation is as follows:

- for cows reported bred :
  DAYS OPEN = LAST BREEDING DATE - LAST CALVING DATE
- for cows not reported bred and over 59 DIM :
  DAYS OPEN = Current TEST DATE - LAST CALVING DATE
- for cows not reported bred and < 60 days in milk, and cows coded NTB (Not To Breed), DAYS OPEN is not calculated;
- for cows reported confirmed pregnant, a P will be printed in the DAYS OPEN column.

The User Guide for the DHI Breeding Guide Plus option provides valuable information on the average days open (DAYS TO LAST BREEDING) for the herd.

In general, producers should consider breeding cows at their first heat after 45 - 50 days postpartum although some producers prefer to wait until the first heat after 60 - 70 days postpartum for their high producing cows. Problems with both fertility and heat detection will increase DAYS OPEN.

Individual cows with DAYS OPEN over 110 days should be identified and the reason for extra days open determined. If the herd includes cows that will not be bred, these cows should be coded NTB (Not To Breed) so that the average days open will not be inflated.

DAYS OPEN is an important indicator of reproductive efficiency and excessive days open are costly. Research has shown that the average cost of DAYS OPEN over 100 days is between $3.84 and $4.12 per cow per day.

LAST BREEDING DATE (MM - DD) : The date of the last reported

breeding, shown as months and days. It is important that all breeding dates are reported to DHI. Unreported AI or natural breeding dates will result in misleading information on all the reports.

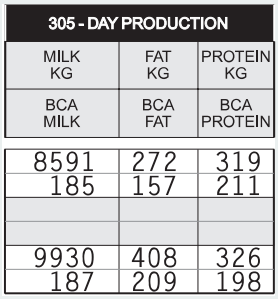
MILK KG : The kg of milk produced to date in the current lactation.

FAT % and PROTEIN %: The weighted average percent fat and percent protein tests for the MILK KG produced to date in the current lactation. Table 2 shows average FAT % and PROTEIN % for the 5 major breeds in Canada.

Table 2 : Canadian breed average fat %, protein % and fat : protein ratios.

BREED	FAT %	PROTEIN %	FAT / PROTEIN
Ayrshire	3.94	3.36	1.17
Brown Swiss	4.02	3.55	1.13
Guernsey	4.52	3.60	1.26
Holstein	3.65	3.21	1.14
Jersey	4.91	3.93	1.25

305 - DAY PRODUCTION



This section reports actual or projected 305 - DAY PRODUCTION for each animal in terms of KG and BCAs of milk, fat and protein. BCA indexes are based on the amount of milk, fat and protein a cow produces. Adjustments are made according to the breed of the cow, her age at calving and her month of calving. For detailed information on the calculation of BCAs, refer to the Infosheet DHI Breed Class Average.

Projected 305 - day production data are shown for cows :

- between 45 and 304 days in milk (DIM);
- less than 45 DIM with two valid tests.

Actual 305 - day production data are shown for cows :

- dried off after 119 DIM;
- sold or died after 239 DIM;
- still in milk after 304 DIM.

305 - day production data is not reported under the following conditions :

- cow is less than 45 DIM with only one test;
- first test was after 75 DIM;
- greater than 75 days between tests;
- record is uncertifiable (see * flag, page 7);
- breed is unknown;
- no calving date recorded;
- no birth date recorded.

BCA DEVIATION FROM CURRENT BCA

BCA DEVIATION FROM CURRENT BCA		
MILK	FAT	PROTEIN
+0	-30	+17
+2	+22	+4

The performance of a cow, relative to herdmates, can be assessed using BCA DEVIATIONS. A BCA DEVIATION is the difference between a cow's projected or actual BCA on test day and the herd's CURRENT BCA reported on the top line of the TEST DAY SUMMARY (PREVIOUS 12 TESTS) section of the Monthly Herd Summary Report. Cows below the herd average for milk, fat or protein yield have a negative (-) deviation for that trait; those above have a positive (+) deviation.

Figure 1 shows a typical herd distribution for BCA milk deviations. Notice that most of the cows are grouped around 0, which is the herd average BCA deviation. High positive deviations usually identify genetically superior cows. Conversely, cows with large negative deviations may be candidates for culling.

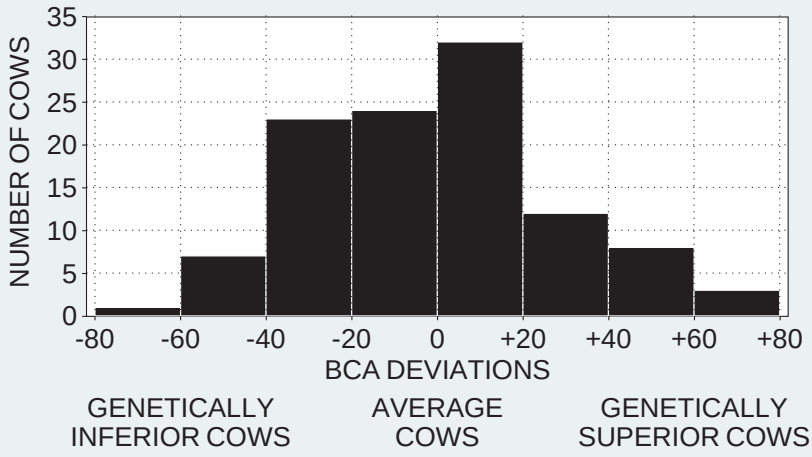


Figure 1 : A typical distribution of BCA milk deviations. This one was from a herd with 99 cows milking, where (for example) 32 cows had BCA milk deviations between 0 and +20, 24 were between 0 and - 20, etc.

For more information

DHI Monthly Herd Summary Report User Guide

DHI Lactation Curves User Guide

DHI Cow Productivity User Guide

DHI Breeding Guide Plus User Guide

DHI Breed Class Average Infosheet

DHI Persistency of Milk Production Infosheet